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Published in:
Animal welfare and ethics: From principle to practice

Publication date:
2012

Document version
Publisher's PDF, also known as Version of record

The interaction of ethical questions and farm animal welfare science

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Abstract

In the early days of farm animal welfare science it was often claimed that a sharp distinction should be drawn between, on one hand, the science-based study of animal welfare and, on the other hand, ethical investigation of what is right, and what is wrong, in our dealings with animals. However, following debates starting in the early 1990s, it is now widely recognised that scientific assessments of animal welfare simply cannot avoid making ethical assumptions.

Using simple but realistic examples, the presentation will explain how ethical assumptions inform the study and assessment of animal welfare at different levels.

First, and most obviously, it matters a great deal how animal welfare is defined in the first place. Should we think of welfare in terms of animal function, or in terms of the avoidance of pain and other suffering? Or should we focus on the net balance of negative and positive states (pain and enjoyment or pleasure)? Perhaps we should try to assess preference satisfaction, or the extent to which the animal lives in a natural way. By choosing a specific definition of animal welfare the researcher will be taking a stance on what matters in our dealings with animals.

Secondly, the indicators selected as measures of animal welfare may introduce biases which are relevant from an ethical perspective. Thus, indicators connected with pathologies and other states which are signs of pain and other types of physical suffering will inevitably favour production systems which are safe but barren. Would such a narrow focus miss something of ethical importance?

Thirdly, ethical assumptions are hugely important when researchers aggregate their results in an effort to say something about the net welfare of a group of animals. Here decisions have to be taken as to how different aspects of animal welfare should be balanced against each other – for example, the incidence of disease and injury versus the ability to exercise a wide range of natural behaviours. Difficult trade-offs may also have to be struck between the situation of the worst off animals in a group and the general welfare of the flock, often defined in terms of average welfare.

Finally, it matters, ethically, how scientific uncertainty is dealt with. Many welfare researchers, for example, regard it as highly likely, but not absolutely certain that farm animals are unconscious until after birth. However, would it be ethically advisable to exercise caution here? Should we assume, unless and until we are shown to be mistaken, that unborn animals may well be conscious, and protect them accordingly?

Following the presentation of these ethical issues it will be argued that if we are to maintain the objectivity of welfare science, animal welfare researchers need to present their underlying ethical assumptions in a transparent way. Transparency of this kind allows potential users of research to assess its wider ethical significance and importance.

Introduction

Let me start by thanking RSPCA Australia for the invitation to come all the way down from Denmark and present my thoughts on the relation between animal welfare science and ethics.

I should also mention my co-authors: Björn Forkman, who is professor of ethology, and Karsten Klint Jensen, who is trained as a philosopher, like myself. Besides helping me to prepare today's presentation they are both co-authors on several of the published papers on which the presentation draws.

The title of my talk was more or less given to me by the organisers – together with a reference to a paper of mine (Sandøe *et al*., 2003) which is now nearly ten years old and which actually developed thoughts I first presented in a paper in 1992 (Sandøe & Simonsen, 1992). So I feel a bit like an ageing rock star on a

reunion tour singing his old hits. However, over the last twenty years, together with my co-authors, I have actually been working on and developing the thoughts presented here, so with luck much of what of I have to say will be new to you.

The claim I want to make in this paper is *not* that ethics and animal welfare science are the same thing. Rather my claim is that when animal welfare is studied from a scientific perspective ethical assumptions are inevitably in play. And I shall argue that this is no problem as long as these assumptions are made transparent.

I will start by tracing the origins of the idea that animal welfare science can and should be independent of ethics. Then I will try to demonstrate how ethical assumptions enter the study of farm animal welfare at four different levels. Towards the end of the presentation I will try to explain how it is possible to acknowledge that animal welfare science relies on ethical assumptions and at the same time continue to claim that this branch of science is as objective as any other.

The idea of science as an arbiter of animal welfare

The modern idea of animal welfare was given its first clear statement in a report issued by the Brambell Committee in 1965. The committee was set up by the British government following public outcry at intensive livestock farming; the outcry in turn was triggered by Ruth Harrison's book *Animal Machines,* published in 1964. The recommendations of the committee formed the basis of subsequent British and European animal welfare legislation.

The report also presents a vision of a new branch of science – animal welfare science – which can be used to inform efforts to improve the welfare of farm animals. This vision is nicely captured in the following quotation from the report:

> "Any attempt to evaluate welfare … must take into account scientific evidence available concerning the feelings of animals that can be derived from their structure and functions and also from their behaviour" (Brambell, 1965)

Note the new, and at that time extremely controversial, idea presented by the committee, that the study of animal *behaviour* should play a key role in the assessment of animal welfare. Brambell's insistence on the importance of scientific input is quite right, in my view. The problems I am going to discuss emerge later.

Not all of the recommendations of the Brambell Committee were followed by the British government, but one that was followed was that there should be further investment in animal welfare science. This would not be too costly, and it would buy the politicians some time before they were obliged to make genuine reforms to the housing and care of farm animals.

One of the main pioneers in the field of animal welfare is Donald Broom. Until recently he was Professor of Animal Welfare in the Department of Veterinary Medicine at Cambridge University. From the beginning, Broom clearly felt he had to defend the study of animal welfare as a genuine part of science – not something soft and ethical.

I think that partly explains the statement made here – which is the statement that I want to disagree with in this paper:

> "The assessment of welfare should be quite separate from any ethical judgement about how animals should be treated, but once an assessment is completed it should provide information which can be used to take decisions about the ethics of the situation." (Broom, 1996)

The idea that animal welfare issues can be dealt with on a purely scientific basis is not confined to academics. In various ways, and to differing degrees, it has been taken up by the farming sector, by governments and by international bodies, including the European Union Commission.

Until a few years ago, the Commission had a scientific committee to give advice on animal welfare. Its mandate sounds quite innocent and uncontroversial. It is to give advice "on scientific and technical questions concerning the protection of animals".

However, a closer look at the reports coming out of the committee reveals something much less innocent. Let me focus on a 2000 report on broiler production. Among many other things, this report deals with the issue of stocking density. It makes a rather firm recommendation:

> "When stocking rates exceed approximately 30 kg/m^2, it appears that welfare problems are likely to emerge regardless of indoor climate control capacity…" (SCAHAW 2000)

Personally, I have no problem with the idea of a maximum stocking density for broilers; nor does the figure 30 kg/m^2 seem horribly misconceived to me.

However, I do have a problem with this being presented as something that is based purely on science. If you look at the scientific literature, you will find that there is no clear cut-off point at 30 kg/m^2. So this figure is really the product of an attempt to balance various concerns – economic and welfare-related – which bear upon the regulation of broiler production by setting a maximum stocking density.

To do this and disguise what you are doing as objective science is, in my view, highly problematic.

The position I am sketching today is based on a very simple logical point, originally formulated by the Scottish philosopher David Hume (1711-1776). Hume famously claimed that it is not possible to derive an "ought" from an "is". This claim is sometimes known as Hume's Guillotine (or Law); but don't worry, I am not planning to digress and talk about decapitating people!

We can reformulate Hume's dictum in more modern and somewhat wider terms. That is, we can draw a distinction between on the one hand factual claims and on the other ethical or evaluative claims. For present purposes we need to consider the relatively uncontroversial distinction between *scientific* and evaluative claims. I take scientific claims to be a sub-variety of factual discourse.

The difference, according to my interpretation, is that the latter are action- or policy-guiding in a way that the former are not. So I want to claim that assessments of welfare have an ethical component: they say something about what is good or bad from the point of view of the animals. Biological facts, by themselves, never say anything about what is good or bad.

In what way do statements about animal welfare guide us in our decisions to act, or to adopt this or that policy? The key thing is that they say something about what is good or bad *from the point of view of the affected animals*. (Note that they do not guide action in a highly simplistic way: there is no logical oddity about saying that something should be done even though it has a negative effect on animal welfare.)

Biological facts, by contrast, do not by themselves say anything about what is good or bad for animals. To do that they must be interpreted in the light of an ideal, i.e. a view of what counts as a good animal life. This is just to say that an ethical premise is needed.

So now let me move on to look at the ethical assumptions relating to the study of animal welfare.

Ethical concerns relating to the study of animal welfare

I want to discuss four kinds of ethical assumption, any of which may, at some or other level, inform the study of animal welfare. The first concerns how animal welfare is defined.

a. The definition of animal welfare

Let me start by using an example borrowed from Fraser 2003 as an illustration: one of the highly controversial issues relating to farm animal welfare is the housing of sows. For many years this has been a central, highly contested, issue in the international literature. Specifically, it has been discussed whether the welfare of sows is best served by their being kept in stalls or group-housed.

When one looks into the literature on the subject, it turns out that animal welfare scientists are divided. Interestingly the division seems to be geographically defined.

Here are the key conclusions from a European and an Australian report.

> "Some serious welfare problems for sows persist even in the best stall-housing system" (von Borell *et al.*, 1997)

> "Both individual [including stalls] and group housing can meet the welfare requirements of pigs" (Barnett *et al*., 2001)

Both reports were written by groups of eminent scientists, and they were prepared on the basis of a review of roughly the same literature. However, as you can see their conclusions are inconsistent. How can that be?

There is, of course, no simple answer to that question. My guess, though, is that the two groups have worked with different definitions of animal welfare. These definitions have very probably been tacit. In cases like this it seems a good idea to make them explicit.

Here, I shall not pursue this example further, because I want to proceed to a more general discussion of definitions of animal welfare.

That it is possible to disagree over what counts as a good life may come as a surprise to some of you. However, it does not come as a surprise to someone, like myself, with a background in philosophy. Dating back to ancient times there have been fierce philosophical debates about what counts as a good human life.

Before engaging in animal ethics I worked in medical ethics. Here I became acquainted with the detail of discussions about the nature of human quality of life. When I moved into animal issues I found that the conceptual framework could be re-applied.

The starting point here is a group of theories (which, incidentally, were often attacked by Plato and other influential ancient philosophers) which claim that mental states are what matters – pleasure and the absence of pain.

In public debate about animals the focus was initially on avoiding negative states, which were defined rather narrowly as "pain". One of the novelties of the Brambell Report was to expand that notion and to include frustration of behavioural needs as such. How far have we moved beyond that today? Not that far, I suggest.

Here is a very recent and highly influential attempt to define animal welfare made by Marian Dawkins:

> "Good welfare is defined as animals being healthy and having what they want" (Dawkins, 2012)

This comes close to saying that animal welfare involves animals, in the long term as well as the short term, being free of pain ("being healthy") and free of frustration in their behavioural needs ("having what they want"). (Of course there is room for discussion about how to interpret Marian Dawkins here – and I may be interpreting her in a too restrictive way.)

Suppose you ask a friend whether she is happy. She answers "I am not ill and I am not frustrated. What more could I ask for?" One thought is that she has probably put the bar too low. You could reply: "God damn it! What about excitement, joy, fun and pleasure?"

Some people may want to say something similar, on behalf of animals, when faced with Marian Dawkins' definition of animal welfare. They may wish to insist that animal welfare is not just the absence of negative mental states but also the presence of positive ones. This is not just adding something more to what counts. It may also open up certain trade-offs, as the following example serves to show.

This picture was taken one Sunday in April a few years ago – on so-called "eco-day", a yearly event where the organic dairy cows in Denmark are released on to pasture in the spring. Most people sense that the cow is not only happy – it is enthusiastic.

Let's assume that when dairy cows are released to graze on pasture they have positive mental states. If these states are allowed to count, this will matter when it comes to welfare assessments and the comparison of all-year indoor housing and systems where cows are permitted access to pasture during certain periods of the year.

Thus we know that being on pasture can also have a negative impact on welfare – e.g. because it can lead to uneven feeding and hoof infections. Therefore it matters whether positive states count and may serve to counterbalance such negative effects.

The next group of theories are called "desire" or "preference" theories. These emerged from economics. They are quite popular within the human sphere – that is, when the question is: What makes for a good human life?

How do they translate to the farm animal case? Researchers studying animal welfare use various techniques to reveal and measure the preferences of animals. However, these techniques are normally interpreted within the framework of mental state theories.

A third group of theories are so-called "perfectionist" theories. These differ from preference theories and mental state theories in that here it is not only the subjective view of the animal which counts. What matters is that the animal acts and develops in accordance with its nature, whether or not that "feels good" to the animal or is in accordance with its actual preferences.

This kind of view is not very popular among animal welfare scientists, but it seems to have a rather wide public appeal.

This is illustrated by the following quote which is an excerpt from a focus group interview conducted in Denmark, the results of which were published in the paper "Happy pigs are dirty" (Lassen *et al*., 2006):

> "… I have a pile [of cards] here containing the organic label and these pigs, I believe they are organic. They do not have a ring in the nose and they are dirty! That is crucial, pigs should be dirty! The reason why I have all the other pictures of pigs in the other pile is that they are far too clean. That means that it is a pure industrialised production. All the pigs are clean – I don't like that. And that includes the one with the curly tail too! Nice and curly, but a little too clean, I find. It should have been dirty like the others."

During the interview the participants were asked to sort some cards with pictures of pigs. Some pictures show indoor pigs. Others show outdoor pigs.

In the passage copied above someone is explaining why he thinks some of the pictured pigs are better off (or more to his approval) than those in "pure industrialised production". He returns – admittedly in a rather crude way – repeatedly to the theme of dirtiness.

Of course, it is not clear whether this interviewee connects dirtiness in pigs with positive mental states. English speakers do say "Happy as a pig in muck!" It is clear, however, that natural living also seems to matter.

The three groups of theories we've looked at – mental state theories in different varieties, desire theories and perfectionist theories – are generally regarded as competitors, but they can be combined.
It is possible to hold a mixed view with elements from more than one of the theories. For example, most perfectionists – those who believe natural living counts – will concede that avoiding pain and other unpleasant states also matters. This means there will be some balancing to be done.

b. The choice of indicators

We have so far looked at alternative ways of viewing animal welfare, but even if two researchers agree over what makes for a good animal life, or the definition of animal welfare, they may still arrive at different welfare assessments. One reason for this is that they may deploy different indicators of welfare, or give those indicators different weightings.

The choice of indicators may be biased in various ways not only by how one defines animal welfare but also by concerns relating to fashions in science (Sandøe *et al*., 2006). This is a picture of my colleague Björn Forkman, who is also a co-author of this presentation:

He has lost his keys and is looking for them. I am asking him whether he has lost them under the lamp. "No", he answers, "…but there is more light here". This is a good illustration of the way many researchers choose their indicators. I mean, it is sometimes felt to be more important to use the immediately available, cheap, measures from e.g. databases than it is to measure the right thing.

For example measures of mortality, or of pathologies, may be easy to apply. However, as stand-alone indicators they may fail to give valid results.

If one wants to compare the welfare of caged and free-range hens, it matters a lot which indicators one chooses. This comes out nicely in the following quotation from a recent review paper:

> "It appears that no single housing system is ideal from a hen welfare perspective. Although environmental complexity increases behavioral opportunities, it also introduces difficulties in terms of disease and pest control. In addition, environmental complexity can create opportunities for the hens to express behaviors that may be detrimental to their welfare." (Lay *et al*., 2011)

If one measures only mortality, pathologies relating to feather-pecking, cannibalism and other forms of detrimental behaviour, and the pathologies of various infectious diseases, cage systems are bound to emerge as superior. But that cannot be the end of the story. Clearly, one can discuss whether this is a fair evaluation – for example, whether the opportunity to exercise various natural behaviours should count in favour of free-range systems.

c. The aggregation of results

In their essentials, the ideas I have presented so far could have been presented 10 years ago. But I now want to move on to something which barely existed then, because the assessment of animal welfare at farm and group level is a recent research trend.

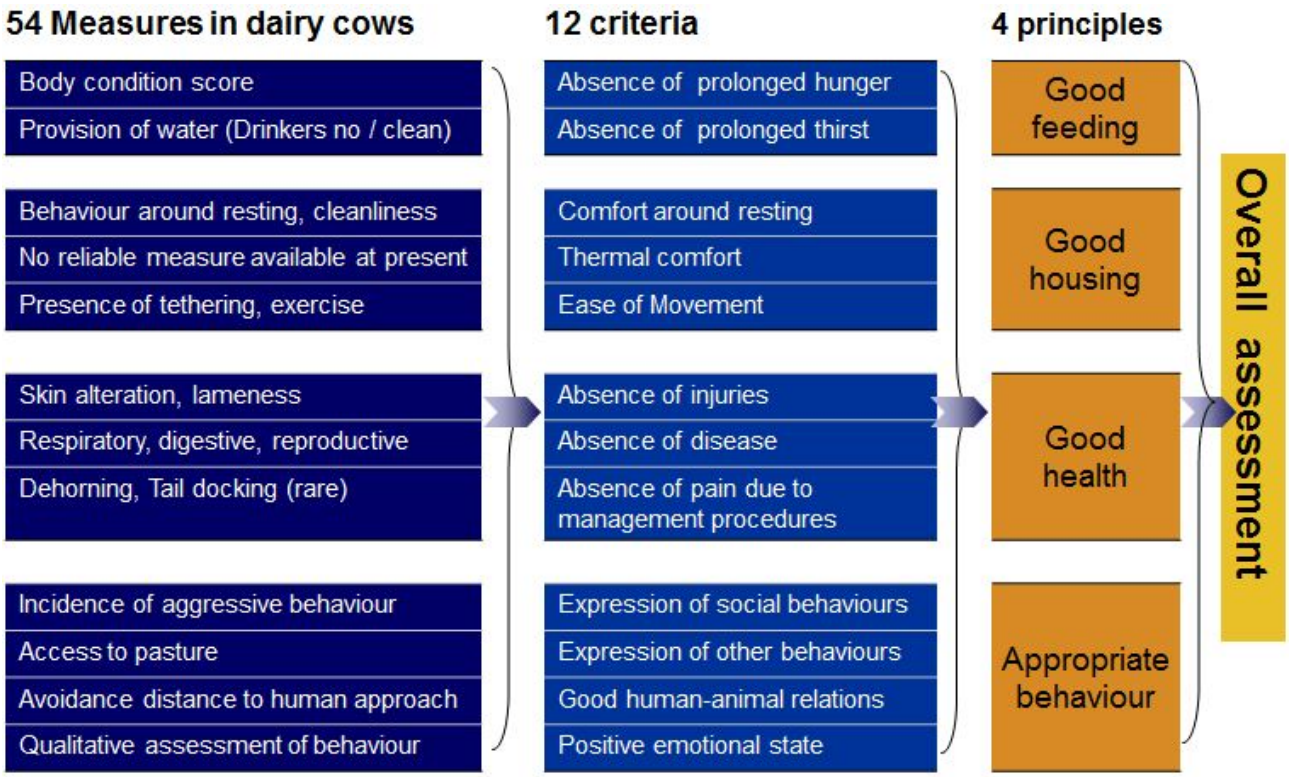
Most classical animal welfare research was experimental. This provided many insights into what, in an ideal world, would give animals what they need. However, it told us little about the levels of problems on real life farms, and how these levels vary from farm to farm, depending on the ability of the farmer to take good care of her animals.

A new wave of animal welfare research, focusing on the assessment of animal welfare at farm or group level, began around 2000. Arguably, this new wave culminated in the recently concluded large-scale EU project Welfare Quality®.

Welfare Quality® aims ultimately to collect welfare scores for individual farms. Since the scores are expressed in single numbers derived from a large number of measurements, the need to aggregate is very obvious. With aggregation come a number of ethical issues which I shall now try to say something about.

Before I do that, I need to sketch for you the mechanics of the Welfare Quality® scoring model.

Welfare, in Welfare Quality®, is viewed as a multidimensional concept: it consists of 4 principles which branch into 12 criteria which again branch into 54 measures. Here you can see what the model looks like for dairy cows:



To reach an overall assessment one has first to calculate scores at criterion level according to the data produced by measures on a farm. Then the criterion-scores are pooled into principle-scores, and these are in turn aggregated to produce the overall assessment.

All score calculations are performed in accordance with well-defined functions. The functions are designed to reflect expert opinions. The experts consulted were animal scientists, social scientists, and other stakeholders.

One question that arises when different values are added together to arrive at an overall score is this: to what extent should a low value in one of the criteria be compensated for by a high value in another criterion?

Let's see how that plays out in practice, taking the four criteria feeding into the principle "Good Health" for fattening pigs as an example.

Table 4 Example of scores for the overall principle 'good health' in fattening pigs given by scores obtained for the criteria 'absence of injuries', 'absence of diseases' and 'absence of pain due to management procedures'.

Criteria: absence of...			Principle
Injuries	Disease	Pain	Good health
25	50	75	**32**
25	75	50	**35**
50	50	50	**50**
75	25	50	**28**
75	50	25	**34**

(From Veissier *et al*., 2011)

You should be able to see here that higher values are not allowed fully to compensate for lower values. Had they been allowed to do so the score would have been the same in all five cases – where the average score is the exactly identical.

This limit on compensation is secured by an ethical principle which gives greater weight to the prevention of suffering (low values) than it does to the promotion of good welfare (high values).

A similar problem concerns aggregation between animals. For example, when we are assessing the disease load at a farm it may not be sufficient just to look at the average or other similar aggregated measures.

Two cattle farms, over a certain period of time, may have the same average level of disease. However, it may turn out that on one farm the disease load is evenly spread across the livestock, whereas on the other it is carried by a minority of the animals. Given a principle of fairness, it could be argued that the first farm does better than the second. (It may even be argued that the average suffering is higher on the second farm than on the first.) (See Houe *et al*., 2011)

Finally it is obvious that there is an ethical issue when it comes to defining the boundary between acceptable and unacceptable conditions. In the Welfare Quality® project, they first defined *a priori* how to divide between four levels: Excellent, Enhanced, Acceptable and Not classified. When it turned out that too many farms came out at the lower end the thresholds were changed.

Those concerned about farm animal welfare will naturally feel that it is important to know about this kind of thing!

d. The handling of scientific uncertainty

Now I will move to the last kind of ethical assumption which may play a role in animal welfare research. It has to do with the handling of uncertainty.

I want for a start here to consider an example. In a very impressive series of research papers David Mellor and his colleagues have argued that foetuses cannot suffer before they are born. They end up with a very clear conclusion:

> "We conclude that the embryo and fetus cannot suffer before or during birth. Furthermore, we conclude that suffering can only occur in the newborn when the onset of breathing oxygenates its tissues sufficiently to substantially reduce the dominant adenosine inhibition of brain electrical activity." (Mellor & Diesch, 2006)

This contention has a number of welfare implications – for example, that, from the point of view of welfare at least, one should not worry about animals which die before or during birth (assuming that welfare is to be defined in terms of feelings).

Mellor is clearly out of step here with widespread, common-sense opinion. Thus, if he and his colleagues are right – and personally I think they are – their view will probably apply to human foetuses as well. However, that is not the way many people regard human foetuses.

It is therefore likely that many people will not believe, or accept, Mellor's results. They will conclude that we should err on the side of caution here – that animal foetuses should be "given the benefit of the doubt". And ironically that is what has happened in New Zealand law and in the law of some Australian states. Despite the results presented by Mellor, the New Zealand Animal Welfare Act still covers "any mammalian fetus … that is in the last half of its period of gestation or development". Similar rules apply in Victoria and Queensland.

When, and to what extent, animals should be given this benefit of the doubt is clearly an ethical issue (Sandøe *et al*., 2004). It has recently become fashionable to link animal welfare assessment to the risk analysis framework. In the light of this it is interesting to note a parallel here with discussions of the so-called "Precautionary Principle" – a principle many take to be suited for application to some risk issues, including the GMO question.

Maintaining the objectivity of animal welfare science by making ethical assumptions transparent

Well, I hope to have convinced you that ethical assumptions permeate the study of animal welfare. A question then naturally arises about what exactly this means. Should animal welfare scientists give up on any claim to objectivity, with all that this entails about the importance and status of their work?

I see no reason to believe that the objectivity of animal welfare science is under threat. If it were, the problem would not just be for animal welfare science but for large parts of applied science. For example, difficulties would inevitably surface in toxicology.

However, as I say, I don't think there is serious worry about objectivity here – as long as the values that are involved in animal welfare science are made transparent. For where values are transparent, everyone can know the limitations of the results.

Of course, the power, or authority, of welfare scientists will also shrink a little. But I don't see that as a big problem either.

When scientists base themselves on certain ethical assumptions, they do so, we very much hope, because they believe in those assumptions. For example, a scientist may strongly believe that the feelings of animals matter but that natural living does not.

What should scientists do when they are challenged over their assumptions? Should they say something like: "Since I am a scientist I don't have any views about ethical matters"?

Hopefully not. Surely it would be better to enter the debate about values. Scientists are perfectly entitled to do so, but they must recognise that so too are others. They should be aware that here they do not speak with the authority of pure science. They speak as engaged and knowledgeable citizens.

This may indeed raise levels of public respect for scientists and make scientists more reflective – both of which outcomes are to be valued.

Thank you for listening. What I have said here builds on a long list of papers dating back 20 years (my back catalogue, if you like!), and much work is still in progress. If you want to know more, please consult our webpage, www.animalethics.net, where some of the papers can be found as post-prints.

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